faces his account of his results with an interesting historical introduction, forming an admirable résumé of the topic. His own experiments consist in setting a movable weight upon a tuning fork, so that the resultant tone forms just a given interval with a constant fork; and, again, in finding the point at which the falsity of the interval is detected above and below. He then groups and averages the results, expressing the sensibility as the just perceptible portion *of a vibration per second* from the true interval. For Schischmánow, who is musical, and a fellow student K., who is not, the results for the different intervals thus expressed are: *Octave* (2:1), S 0.220, K 0.356; *Fifth* (3:2), S 0.332, K 0.374; *Fourth* (4:3), S 0.419, K 0.403; *Third* (5:4), S 0.485, K 0.559; *Major sixth* (5:3), S 0.502, K 0.506; *Second* (9:8), S 0.548, K 0.716; *Minor third* (6:5), S 0.607, K 0.640; *Minor sixth* (8:5), S 0.672, K 0.740; *Minor seventh* (9:5), S 0.678, K 0.763; *Major seventh* (15:8), S 0.861, K 0.902. While practice and individual differences play some part, the order as presented by Schischmánow, especially for the four best and the three worst appreciated intervals, may be taken as normal, and agrees very well with the order determined by Helmholtz, on the basis of the relative consonance of overtones, though Schischmánow does not regard this as the sole factor in the sensibility.

Die Seelenthätigkeit in ihrem Verhältniss zu Blutumlauf und Athmung. Prof. Dr. ERNST LEUMANN. Philosophische Studien. Bd. V, H. 4.

This "lay" contribution is suggestive rather than positive, its object being to call attention to the desirability of noting pulse and respiration rates in connection with psychometric determinations. The failing of words to speak, as well as power to speak them, when out of breath, or physically weary, the slowing of pulse and respiration in drowsiness and sleep, illustrate the general relation in question. As suggesting the kind of relation experiment may establish, Prof. Leumann found in one subject a pulse of 77 when scanning at the rate of 113 feet per minute, and 83 when scanning 140 per minute. Of two gymnasium students, one with a pulse of 85 read 107 feet per minute normally, another with a pulse of 98 read 129 feet per minute. In a rather more accurate test the pulse rate was found to increase as the rate of reading increased. If pulse and respiration rate were noted, we might explain small variations now regarded as accidental. Again Prof. Leumann brings the pulse rate into relation with association times, with the indifference point in the time sense, and the respiration time into relation with the waves of attention, *i. e.*, the periods in the appearance and disappearance of a very faint sensation, but the relation is only a distant analogy. It would be interesting to know whether the waves of attention are larger in slow breathers than in rapid breathers, and so on.

Recherches sur les mouvements volontaires dans l'anesthésie hystérique. A. BINET. Rev. phil., Nov., 1889.

Binet continues his interesting studies in hysterical hemianæsthesia, this time reporting experiments on voluntary motion. By the use of the dynamometer and the dynamograph he has compared the voluntary movements on the sound and diseased sides in respect to intensity and duration, and by reaction-times as to rapidity. The following are the general results found in the case of the subjects on which he worked, for which, of course, he does not claim universality. Two types of activity can be traced, one generally found on the sound side, the other generally on the anæsthesic. The curves representing the first type differ from those representing the second in their greater height and their more rapid rise and descent. In that type also the reaction-time is shorter. Fatigue, however, appears more quickly, betraying itself by irregular respiration and tremors in the acting member. This last is in marked